

Amendments to the Drawings

The attached Replacement Drawing Sheets containing Figs. 12, 19, and 22 replace the originally-filed drawing sheets containing Figs. 12, 19, and 22 of this Application. Annotated Drawing Sheets containing marked-up versions of the amended Figs. 12, 19, and 22 are also attached.

Remarks

Prior to this Amendment, Claims 1-24 were pending in the present application. By this Amendment, Applicant has amended Claims 1, 3, 5, 6, 8, 11-12, 14, 16, 18, and 20-24 and canceled Claim 19. No new matter was added by this Amendment. Reexamination and reconsideration in view of the amendments and remarks contained herein are respectfully requested.

I. Objections to the Drawings

The drawings stand objected to due to informalities identified by the Examiner. Applicant has amended the identified informalities and corrected drawings sheets have been provided with this Amendment.

II. Information Disclosure Statement

The Examiner has asserted that the information disclosure statement filed on July 19, 2004, fails to comply with the provisions of 37 CFR § 1.97 and § 1.98 and MPEP § 609 because a number of references listed in "Other Prior Art" on Form 1449B failed to list the date the reference was published. In response to the Examiner's assertion, Applicant mailed a supplemental information disclosure statement under 37 CFR 1.97(c)(2) and the corresponding fee as required under 37 CFR § 1.17(p) on June 2, 2006, which was received and entered by the U.S. Patent and Trademark Office on June 5, 2006. The supplemental information disclosure statement lists each reference previously missing a publication date. As such, the supplemental information disclosure statement complies with the provisions of 37 CFR § 1.97 and § 1.98 and MPEP § 609 and the information referred to therein should be considered.

III. Claim Rejections - 35 U.S.C. § 112

Claims 3-9, 12-13, 18, 21, and 23-24 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, the Examiner has rejected Claims 3, 6, 8, 12, 18, and 21 for reciting the pronouns "it" or "that." Applicant has amended Claims 3, 8, 12, and 21 to remove the pronoun "it." As such, the Examiner's rejection to Claims 3, 8, 12, and 21 and Claims 4-5, 7, 9, and 13, which depend on Claims 3 and 12, is overcome.

The Applicant has also amended claims 6 and 18 to remove the pronoun “it.” As such, the rejection of these claims is overcome.

The Examiner also rejected Claims 23 and 24 for reciting the language “so that.” Applicant has amended Claims 23 and 24 to remove the language “so that.” Accordingly, the Examiner’s rejection to Claims 23 and 24 is overcome.

IV. Claim Rejections - 35 U.S.C. § 101

Claims 1-24 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. In particular, the Examiner asserts that Claims 1-13 are directed to non-functional descriptive material, per se. Similarly, the Examiner asserts that Claims 14-24 are directed to an abstract idea rather than a practical application of the idea.

In response to this rejection, Claims 1 and 11 have been amended to recite a “computer-implemented knowledge base,” Claim 14 has been amended to recite a “computer-implemented method” and Claim 22 has been amended to recite computer readable medium including instructions for “retrieving one or more cross-referenced data structure components from a computer-implemented database.” A computer and a computer-readable medium are tangible and concrete. Therefore, as now amended, the claims meet the requirements of Section 101. Nonetheless, Applicant discusses additional reasons why the claims meet the requirements of Section 101 and, with all due respect, why the Office has applied an erroneous standard to the claims.

With regard to the assertion that Claims 1-13 are directed to non-functional descriptive material, Applicant first addresses Claim 1. The Office asserts that the “knowledge base only includes non-functional descriptive data...[and w]hat’s included in the knowledge base (i.e., data structure with objects and content) does not appear to meet the IEEE definition of data structure, and no instruction for causing functionality that results in a practical application.” The Applicant disagrees.

Among other things, Applicant notes that a mechanism for storing a novel data structure is, in itself, a practical application. By way of comparison, the following limitations were at issue in *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999):

generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and

including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers.

When discussing this claim, the Federal Circuit noted the following:

In this case, Excel argues, correctly, that the PIC indicator value is derived using a simple mathematical principle (p and q). But that is not determinative because AT&T does not claim the Boolean principle as such or attempt to forestall its use in any other application. It is clear from the written description of the '184 patent that AT&T is only claiming a process that uses the Boolean principle in order to determine the value of the PIC indicator. The PIC indicator represents information about the call recipient's PIC, a useful, non-abstract result that facilitates differential billing of long-distance calls made by an IXC's subscriber. Because the claimed process applies the Boolean principle to produce a useful, concrete, tangible result without pre-empting other uses of the mathematical principle, on its face the claimed process comfortably falls within the scope of § 101. See *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1060, 22 USPQ2d 1033, 1039 (Fed. Cir. 1992) ("That the product is numerical is not a criterion of whether the claim is directed to statutory subject matter."). *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358 (Fed. Cir. 1999).

Thus, the Federal Circuit ruled that a claim that requires determining or generating a message record "fall[s] **comfortably** within the broad scope of patentable subject matter under § 101." *Id.* at 1358 (emphasis added). Applicant notes that the claim in the *AT&T* case does not specify how a "record" is "generated," require that the "record" be generated by a computer, or define what a "record" is. It is also noted that that the terms "subscriber," "record," and "indicator" encompass broad areas of subject matter. Thus, the claim could cover the acts of a telephone operator (i.e., a person) **creating** a "record" on a piece of paper with a pen or pencil and **marking** (again with pen or pencil) in the "record" the specific interchange carrier used. To reiterate, the Federal Circuit stated the following:

It is clear from the written description of the '184 patent that AT&T is only claiming a process that uses the Boolean principle in order to determine the value of the PIC indicator. The PIC indicator **represents information** about the call recipient's PIC, a useful, non-abstract result that facilitates differential billing of long-distance calls made by an IXC's subscriber.

Id. Note, however, that the claim addressed in *AT&T* is void of any language indicating that the PIC indicator facilitates differential billing. In other words, the law does not require that the

claim **itself** be ascribed a practical application for usage. In *AT&T*, the claim was not read in a vacuum but in light of the specification and the Court determined the claim to be sufficiently useful and non-abstract by simply indicating that the “record” included an “indicator.” Further, the court fully recognized the output or result of the claim was information (the “PIC indicator represents information”) and found that such information is “a useful, non-abstract result.” There are few if any meaningful differences between the *AT&T* case and the current situation. The *AT&T* case included claims directed to a message and the information included in the message. Claim 1 recites a data structure generation system that includes a plurality of data structure components and a computer-implemented knowledge base that is configured to be coupled to a data structure assembly facility and to store the data structure components as objects in a hierarchy. Each of the plurality of data structure components is configured to have a precedence defining an override level of the data structure, one or more embedded rules, and content. Such data structure components and a knowledge base are useful in a document generation system. Thus, the claim is not directed to a mere non-functional descriptive material. It is directed to tangible data structure components having particular characteristics and a tangible, computed implemented device with particular features that allow it to be coupled to a data structure assembly facility and to store the data structure components as objects in a hierarchy. Thus, Claim 1 and Claims 2-10 that depend on Claim 1 meet the requirements of Section 101. Similar rationale can be applied to Claim 11 and Claims 12-13 that depend on Claim 11.

With respect to Claims 14-24, the Office asserts the following:

Claims 14-24 appear to be directed to an abstract idea rather than a practical application of the idea. The claims do not result in a physical transformation, nor do they appear to provide a useful, concrete and tangible result. The claimed steps of ‘overriding...’ and ‘transforming...’ do not produce any output result. The final result appears to be overriding (i.e., editing) objects and transforming a tree into a data structure. Thus, that is not a physical transformation; therefore, it must achieve a useful, concrete and tangible result to [sic] statutory. The overriding and transforming are not claimed as applied in a practical application, which a [sic] tangible, i.e., real world result. Instead it appears to remain a mere abstraction.

With due respect, Applicant disagrees. Claim 14 is directed to a computer-implemented method of assembling a data structure from a group of components. The process involves

retrieving data structure components, processing the components in a particular manner, and creating or generating a resulting tree.

In the *AT&T* case the “tangible ... real world result” in the claim was “generating a message record.” A “record” is nothing more than an “information or knowledge preserved in a writing or the like.” *Webster’s Encyclopedic Unabridged Dictionary of the English Language*, Gramercy Books, 1994, p. 1200. A “tree” is orders of magnitude more precise, tangible, and concrete than a “record,” in the sense that a “tree” is, in general, a non-linear data structure that includes a set of nodes connected by branches (e.g., pointers) and in which one node is called the root. *The Authoritative Dictionary of IEEE Standard Terms*, IEEE Press, 7th Ed. 2000, p. 1214. In contrast a “record” could be information of any format or organization stored in anything from a “writing” to an optical disc or the “like.” However, a “tree” has a specific architecture, and in the current claim has to be the result of a “computer-implemented” method. Therefore, the claimed “tree” is more concrete and tangible than the “record” that was generated in the claim at issue in *AT&T*, which the Federal Circuit ruled as falling comfortably within the scope of Section 101. Therefore, Claim 14 meets the requirements of Section 101.

Claim 22 is directed to a physical thing, namely a computer readable medium. Applicant is at a loss as to why a “computer readable medium” is not a “real world” thing; tangible; or concrete. Therefore, Applicant respectfully requests that the Section 101 rejection of Claim 22 be rescinded.

For at least the reasons noted above, Applicant submits that Claims 1-24 define statutory subject matter.

V. Claim Rejections - 35 U.S.C. § 103(a)

A. Claims 1, 2, 4, 6, 7, and 11

Claims 1, 2, 4, 6, 7, and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,006,242 issued to Poole et al. (hereinafter referred to as “Poole”) in view of U.S. Published Application No. 2003/0163809 issued to Bantz et al. (hereinafter referred to as “Bantz”). As discussed below in more detail, Poole and Bantz, taken alone or in combination, do not teach or suggest the subject matter defined by these claims.

Poole discloses receiving “content that is to be included in a document in order to meet the objectives of the parties to a transaction, and to meet certain business, legal, and/or governmental rules and regulations [from a document developer].” Col. 5, lines 3-7. “Each of the constituent portions of the document is associated with an entity reference which is selected by the document developer.” Col. 5, lines 7-10.

As disclosed in Poole, after the document developer selects the appropriate entity references, “each of the entity reference [sic] associated with the document is resolved. A stream 40 of resolved entities or components is produced at step 38 at the conclusion of, or, alternatively, during the entity reference resolution process.” Col. 5, lines 10-14. After a “document developer authors a document instance and associates entity references with the document instance...an entity reference is read from the document at step 123. One or more catalogs are searched at step 125 in order to match the entity reference with a corresponding entity identifier stored in a catalog. It is noted that more than one entity identifier and corresponding resolution strategy may be stored in one or more of the catalogs. It is desirable that the resolution strategy of the first matching entity identifier in a catalog be executed.” Col. 6, lines 52-63.

Clearly, Poole teaches attempting to match an entity reference specified by a document developer with an entity identifier in a catalog. When one or more catalogs include identical entity identifiers, the only resolution strategy disclosed in Poole includes using the first matching entity identifier. Even assuming for the sake of argument that using the first matching entity identifier encountered by the system is a form of applying precedence, Poole only discloses “applying precedence” to entity references specified by a document developer. Poole **does not teach or suggest a knowledge base for storing data structure components that have precedence that defines an override level of the components**, as specified in amended Claim 1.

Furthermore, Poole does not teach or suggest a knowledge base for storing data structure components (i.e., objects) that include embedded rules, as specified in amended Claim 1. In contrast, Poole discloses receiving “content [from a document developer] that is to be included in a document in order to meet the objectives of the parties to a transaction, and to meet certain business, legal, and/or governmental rules and regulations.” Col. 5, lines 3-7. Thus, while Poole

uses rules, they are not embedded as claimed. As noted, the entity references associated with the document are resolved.

To further clarify this point, Applicant notes that in an initial step of creating a document, “knowledge is entered into the Knowledge Base in the form of documents, document components, document type definitions, catalogs, rules, links, and other information needed to construct any number of document and form types.” Col. 6, lines 18-22. In particular, “at step 103, the knowledge is entered into the Knowledge Base in units of text or text fragments referred to as components. At step 105, the rules that dictate the access and utilization of components are also entered into the Knowledge Base.” Col. 6, lines 31-35.

Thus, Poole discloses defining document content or text to be used by in the document generation and separately defining rules that govern use of the document content. Further, the rules are stored in the knowledge base, not the documents. Poole does not disclose embedding rules in data structure components that store the document content.

Therefore, Poole does not teach or suggest “a computer-implemented knowledge base...configured to store the plurality of data structure components as objects in an object-relational hierarchy,” where each data structure component is configured to have a precedence defining an override level of the data structure component, to include one or more embedded rules, and to include content, as recited in amended Claim 1.

Bantz does not cure the deficiencies of Poole. Bantz discloses “a method, computer program product, and data processing system for providing automatic, mass-customized preparation of disk images.” Abstract. In particular, Bantz discloses providing a “graphical user interface [that] allows the customer to choose among alternative software components to customize the disk image for his or her needs.” Paragraph 21, lines 6-8. After the customer provides customer requirements, a “[p]rovisioning engine server 90 retrieves customer requirements...[and] consults knowledge bases 91, 92, and 93 to provide context for the analysis of customer requirements, and transmits a series of provisioning orders...to disk image manufacturing server 110 which will store them on disk 111.” Paragraph 29, lines 1-7.

As disclosed in Bantz, “[d]isk image manufacturing server 110 creates disk images on disks 120, 121 and 122 in a manner responsive to the provisioning orders stored on disk 111 and to a knowledge base 112. Knowledge base 112 contains rules pertaining to the construction of

disk images in general, as opposed to the knowledge bases 91, 92 and 93, which determine which components of software are to be included in the disk image.” Paragraph 31, lines 1-8.

As disclosed in Bantz, rules “that may be found in knowledge base 92” can include if-then rules that specify which software should be chosen for the customer. Paragraph 32, lines 1-7 and FIG. 3. Similarly, “rules that may be found in knowledge base 112, pertaining to the construction of disk images in general...specify where (in what subdirectory) and with what installation options the...software is to be generated into the disk image.” Paragraph 34, lines 1-5. Clearly, Bantz discloses applying rules from one or more knowledge bases to customer requirements in order to determine software and associated software options to be provided to a customer.

However, Bantz makes no mention whatsoever of storing data structure components (i.e., objects) that include a precedence defining an override level for the object or that include embedded rules. In general, Bantz does not discuss customizing rules or software options for a particular customer such that specific rules or software are applied over default rules or software for specific customers.

Therefore, Bantz does not teach or suggest “a computer-implemented knowledge base...configured to store the plurality of data structure components as objects in an object-relational hierarchy,” where each data structure component is configured to have a precedence defining an override level of the data structure component, to include one or more embedded rules, and to include content, as recited in amended Claim 1.

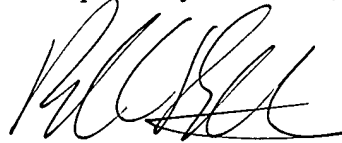
Therefore, Poole and Bantz, taken alone or in combination, do not teach or suggest the subject matter amended Claim 1. Accordingly, for at least the reasons set out above, independent Claim 1 is allowable and dependent Claims 2-10, which depend from independent Claim 1, are also allowable.

Similar rationale can be applied to independent Claims 11, 14, and 22, as amended, and the claims that depend on Claims 11, 14, and 22. Therefore, Claims 11-24 are allowable for the at least one or more of the reasons set forth above with respect to Claim 1.

VI. Conclusion

In light of the above, Applicant believes that the application is in condition for allowance and respectfully requests that a timely Notice of Allowance be issued in this case. Applicant also requests that the Examiner telephone the attorneys of record in the event a telephone discussion would be helpful in advancing the prosecution of the present application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Derek C. Stettner', written over a horizontal line.

Derek C. Stettner
Reg. No. 37,945

File No. 014586-9012-00
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Suite 3300
Milwaukee, Wisconsin 53202-4108
414.271.6560

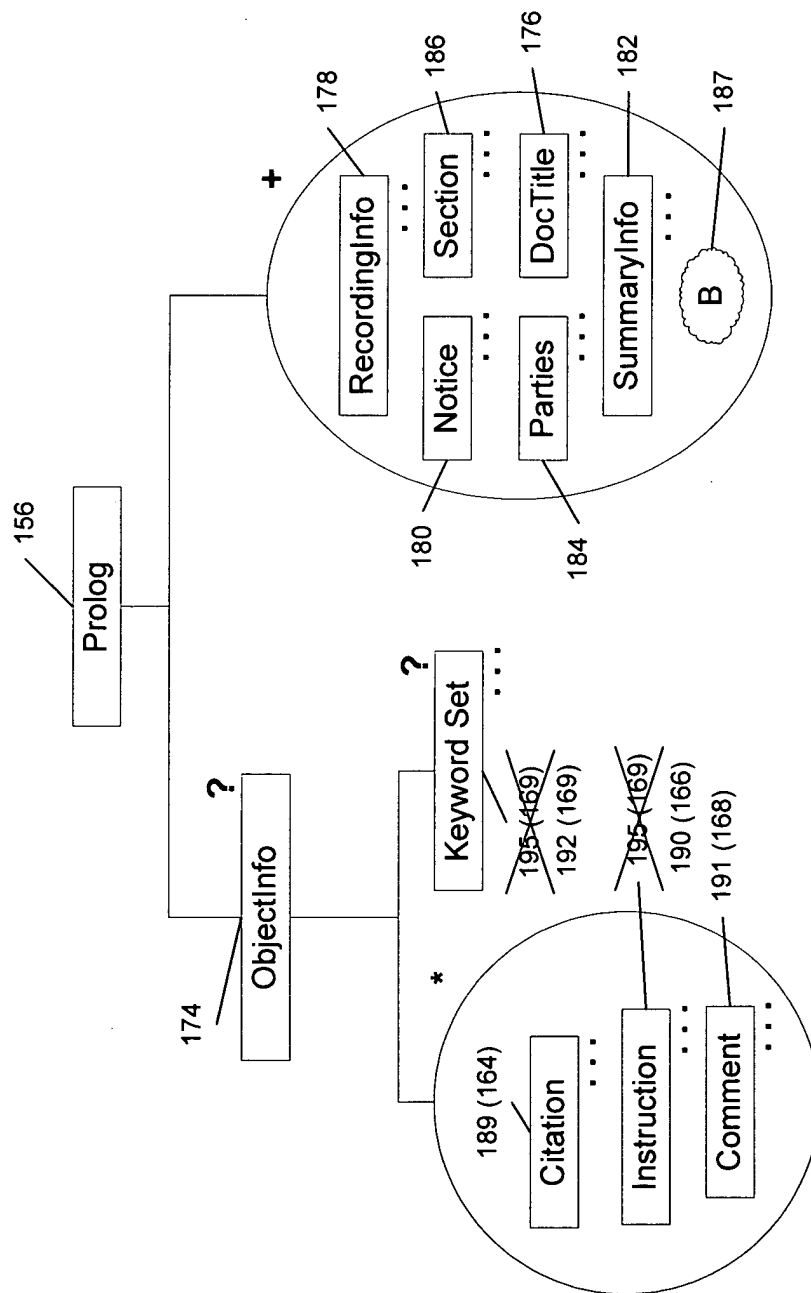


Fig. 12

SPREADSHEET									
FILE EDIT VIEW INSERT FORMAT TOOLS DATA WINDOW HELP ACROBAT									
NORMAL		100%		B I U					
A1	=	TEMPLATE ID							
B									
ELEMENT	DICTID	DICT_NAME	MULTI_VALUED	ELEMENT_INDEX	FORM_FIELDNAME				
1	1016	LOANDETAILSDepositAmount	0	1	LN_DpstAmt_\$TWC				
3	709	LOANDETAILSLenderCaseNumber	0	1	SC_FileNum				
4	377	LOANDETAILSLoanAmount	0	1	LN_Amt_\$TMC				
5	602730	LT-BORROWER.Borr1spage_namesfortrust_MR	0	1	BW_Names				
6	600504	LT-BORROWER.Mail-VS-Borr-Addr-2Line_MR	0	1	BW1_Addr				
7	600007	LT-FHA-VA.AGENCY-NBR_MR	0	1	LN_AgncyCaseNum				
8	600001	LT-MASTER.CLOS-DT-VS-EX-CLOS-DT	0	1	CL_Date_DL				
9	600573	LT-MASTER.ConvenInsured_CHK	0	1	LN_Convinsmc_CHK				
10	600569	LT-MASTER.ConvenUninsured_CHK	0	1	LN_ConvUninsmc_CHK				
11	600541	LT-MASTER.FHA_CHK	0	1	LN_FHA_CHK				
12	600542	LT-MASTER.FmHA_CHK	0	1	LN_FmHA_CHK				
13	600069	LT-MASTER.New-mtg-nbr	0	1	LN_AcctNum				
14	600299	LT-MASTER.VA-RIDER_CHK	0	1	LN_VA_CHK				
15	601870	LT-MISC.INFO.LENDER-ADDR2LINE_MR	0	1	LD_Addr				
16	600019	LT-MISC.INFO.LENDER-COMPANY	0	1	LD Name				
17	600406	LT-MISC.INFO.SETTLE-ADDR_1LINE_MR	0	1	SA_Addr				
18	600092	LT-MISC.INFO.SETTLE-COMPANY	0	1	SA_Name				
19	602812	LT-MISC.INFO2.SETTLEPLACE_501B	0	1	SA_Loc				
PAGE 1		PAGE 2							
READY									

FIG. 19

ANNOTATED SHEET

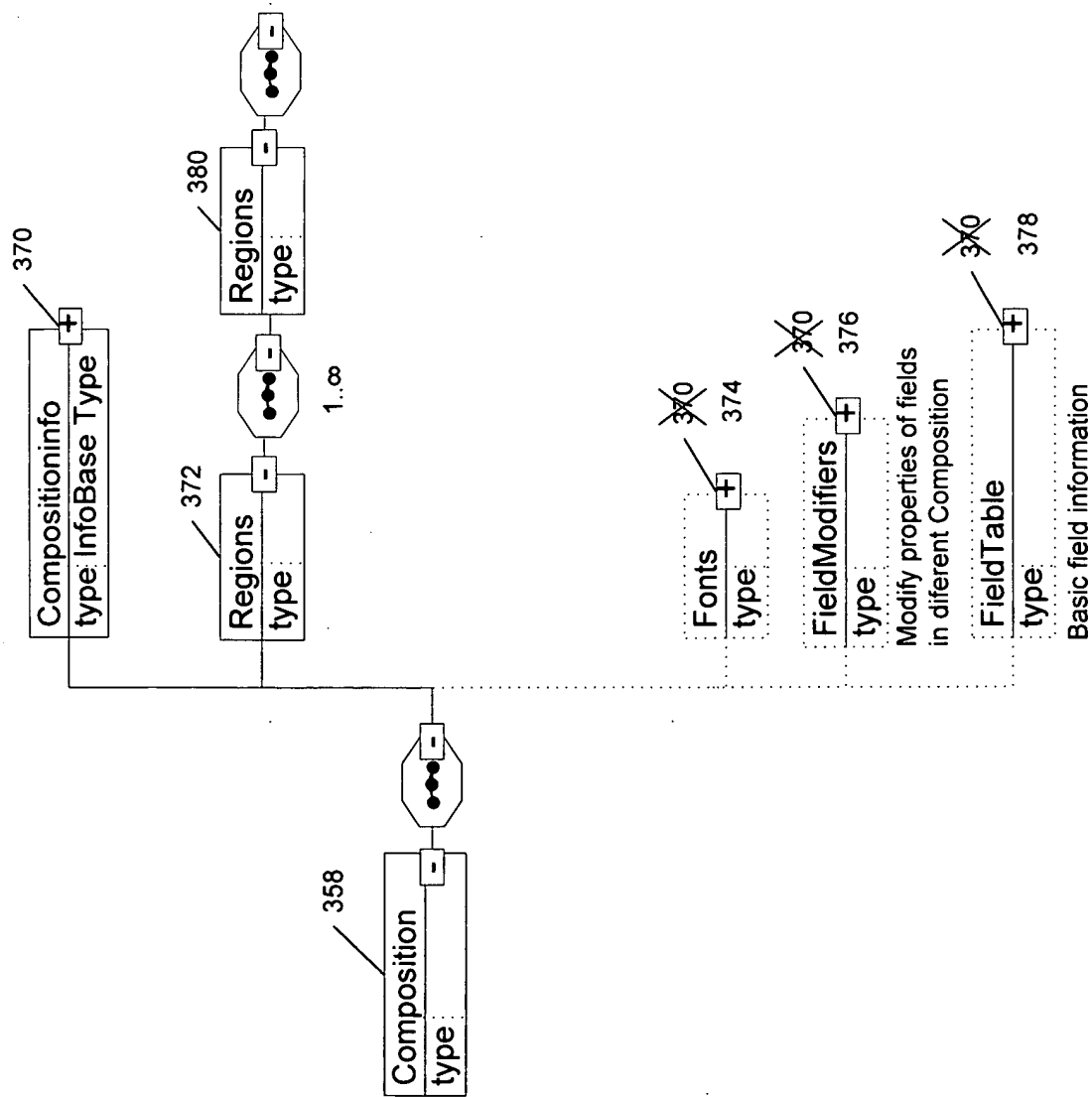


Fig. 22